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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/254,474	03/05/1999	HIDEICHI NITTA	1422-371P	7077

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EXAMINER	
DOUYON, LORNA M	
ART UNIT	PAPER NUMBER
1751	

DATE MAILED: 03/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/254,474	NITTA ET AL.	
	Examiner	Art Unit	
	Lorna M. Douyon	1751	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *5-8,13,16,17 and 20-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *5-8,13,16,17 and 20-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 15, 2003 has been entered.

Claim Objections

2. Claims 16, 17, 21-24 are objected to because of the following informalities:

In claim 16, " mole" (see line 6, two (2) occurrences and line 9) is misspelled.

In claim 17, "mole" (see line 6, two (2) occurrences and line 9) is misspelled.

In claims 21-24, line3 of each, "mole" (2 occurrences) is misspelled.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 5-8, 13, 16-17 and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barletta et al. (US Patent No. 4,919,847), hereinafter "Barletta".

Barletta teaches a process for preparing a high bulk density built particulate detergent compositions wherein 23 parts of linear dodecylbenzene sulfonic acid are mixed in "reactor"(51) and sprayed into the absorption zone wherein the acid impinges on swirling sodium carbonate particles, with the proportion of sodium carbonate to sulfonic acid being 77:23, the sulfonic acid (and the accompanying sulfuric acid which is 7%, see col. 7, lines 52-56) is neutralized by the sodium carbonate and the effluent from the absorption zone is mixed and agglomerated with bentonite (corresponds to free-flowing aid) in a fluidized bed (see Example 3 under col. 9). By computation, the mole ratio of sulfuric acid to sulfonic acid is within the recited range. Barletta also teaches that the product leaving the absorption zone will normally comprise 5 to 40% of the anionic synthetic organic detergent and have a bulk density of at least 0.5 g/cc (see col. 6, lines 19-32; see col. 7, lines 14-20). The molar ratio of inorganic salt to anionic surfactant should inherently be within those recited because of overlapping proportions of the anionic surfactant. Barletta also teaches that the detergent acid to be neutralized may be in the form in which it results from sulf(on)ation of the lipophilic or hydrocarbyl base material, such as alkylbenzene,

and normally, as when linear dodecylbenzene sulfonic acid is the detergent acid charged, the concentration of sulf(on)ic acid will be from 80 to 100%, with from 0 to 20% of sulfuric acid, 0 to 3% of free oil (unreacted or byproduct organic material) and 0 to 5% of water (see col. 5, lines 23-31). Barletta also teaches that a typical linear dodecylbenzene sulfonic acid may have from 85 to 95% of sulfonic acid, 5 to 9% of sulfuric acid and 1 to 2% of free oil with any water content thereof being held to no more than 1% (see col. 5, lines 31-35). Barletta also teaches that the agglomerates may be subsequently hardened by binder treatment, using sodium silicate or an organic polymer solution (see col. 6, lines 25-27; 35-37). Barletta however, fails to specifically disclose the amount of anionic surfactant in the product as those recited in independent claim 16, or the molar ratio of sulfuric acid to alkylbenzene sulfonic acid as those recited in independent claim 17.

It should be noted that Barletta teaches that the product leaving the absorption zone will normally comprise 5 to 40% of the anionic synthetic organic detergent (see col. 6, lines 19-21) and that the concentration of the dodecylbenzene sulfonic acid is from 80 to 100% with 0 to 20% sulfuric acid (see col. 5, lines 26-29), hence, a *prima facie* case of obviousness exists because the claimed ranges "overlap or lie inside ranges disclosed by the prior art", see *In re Wertheim,* 541 F.2d 257, 191 USPQ 90 (CCPA 1976; *In re Woodruff,* 919 F.2d 1575, 16USPQ2d 1934 (Fed. Cir. 1990). See MPEP 2131.03 and MPEP 2144.05I.

6. Claims 5, 6, 8, 13, 16-17, 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tadsen et al. (US Patent No. 5,527,489), hereinafter "Tadsen".

Tadsen teaches a process for preparing a high-density granular detergent product by dry neutralizing alkylbenzene sulfonic acid with a particulate mixture of a water-soluble alkaline inorganic material, for example, sodium carbonate, and a hydratable inorganic detergent builder in an apparatus which provides both mixing and shearing of the particulate mixture thereby forming the granular detergent product (see abstract). Tadsen also teaches that the alkylbenzene sulfonic acid can be made by the oleum sulfonation or SO_3-SO_2 sulfonation of alkylbenzene and contains from about 85% to about 98% sulfonic acid active, from about 0.5 to about 12% sulfuric acid and from about 0% to about 5% water (see col. 10, lines 4-11). Tadsen also teaches that after the complete addition of the alkylbenzene sulfonic acid, other optional detergent materials can be added to the resultant detergent granules which include free flow aid such as crystalline or amorphous alkali metal aluminosilicate (see col. 11, lines 18-29). The granular detergent composition made by this process has a bulk density of from about 600 g/l to about 1000 g/l (see col. 11, lines 43-58) and comprises from about 5% to about 50% by weight alkylbenzene sulfonate (see col. 3, lines 34-53). Tadsen, however, fails to disclose that the dry-neutralization step is carried out in the presence of 0.1 to 1.0 mole of sulfuric acid per mole of alkylbenzene sulfonic acid.

It would have been obvious to one of ordinary skill in the art to reasonably expect the molar ratio of sulfuric acid to alkylbenzene sulfonic acid to be within those recited because Tadsen teaches in col. 10, lines 6-8 that the alkylbenzene sulfonic acid material can contain from about 85% to about 98% sulfonic acid active and from about 0.5% to about 12% sulfuric acid.

7. Claims 5, 6, 8, 13, 16-17, 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Otrhalek et al. (US Patent No. 3,425,948), hereinafter "Otrhalek".

Otrhalek teaches a process for preparing discrete, hollow detergent particles by subjecting a mass of finely divided solid alkali carbonate particles to a tumbling action by a continuously moving surface such as a rotating pan, spraying the alkali carbonate particles with an acid reacting surface active agent material whereby said carbonate reacts with the surface active agent material neutralizing same (see col. 1, lines 15-25), wherein the ratio of the acid reacting surface active agent material to alkali carbonate should not exceed 2/1 (see col. 2, lines 32-35). The detergent particles are produced from a variety of sulfonic acid or sulfuric acid esters which may be obtained from the corresponding alcohols or alkylaryl compounds by methods known to the art, which include the reaction with sulfuric acid, chlorosulfonic acid, SO_3 or other sulfonating agents (see col. 3, lines 53-74). Typical sulfonic acids are dodecylbenzene sulfonic acids (see col. 3, line 74 to col. 4, line 1). Otrhalek also teaches that in many cases it may be desirable to include in admixture with the acid reacting surface active material an additional acid material which is not a surface active agent material wherein the weight ratio of the additional acid material to the alkali carbonate is not greater than about 9/1 (see col. 2, lines 43-51). The additional acid material which may be employed include the common mineral acids such as sulfuric acid and phosphoric acid, and it should be noted that often the readily available sulfonic acid and sulfuric acid ester materials generally include some free sulfuric acid (se col. 4, lines 29-35). The detergent material of the invention is readily formulated with alkaline, acid or neutral builder salts and auxiliary additives (see col. 4, lines 53-65). Otrhalek, however, fails to

specifically disclose the molar ratio of sulfuric acid to alkylbenzene sulfonic acid as those recited and the bulk density of the resulting composition.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the proportions of sulfuric acid and alkylbenzene sulfonic acid of Otrhalek through routine experimentation for best results. As to optimization results, a patent will not be granted based upon the optimization of result effective variables when the optimization is obtained through routine experimentation unless there is a showing of unexpected results which properly rebuts the *prima facie* case of obviousness. See *In re Boesch,* 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980). See also *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936-37 (Fed. Cir. 1990), and *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). With respect to the bulk density of the resulting composition, it would have been obvious to one of ordinary skill in the art at the time the invention was made to reasonably expect the resulting composition to have a bulk density within those recited because similar process steps and ingredients with overlapping proportions have been utilized.

Response To Applicants' Arguments

8. Applicant's arguments filed December 15, 2003 have been fully considered but they are not persuasive.

With respect to Barletta or Tadsen, Applicants argue that none of the references teaches, utilizes or otherwise provides for detergent granules and detergent compositions produced utilizing the method as instantly claimed in claims 16-17 which now recite a method for

producing detergent granules wherein the anionic surfactant is prepared by SO_3 gas sulfonation method.

The Examiner respectfully disagrees with the above argument because Barletta in col. 5, lines 23-26 teaches that the detergent acid to be neutralized may be in the form in which it results from sulf(on)ation of the lipophilic or hydrocarbyl base material, such as alkylbenzene. In col. 7, lines 58-60, Barletta also teaches that the sulfonic acid resulted from oleum sufonation of the hydrocarbon, the oleum being a mixture of sulfuric acid and SO_3. Tadsen, the other prior art, in col. 10, lines 4-6 teaches that the alkylbenzene sulfonic acid can be made by SO_3-SO_2 sulfonation of alkylbenzene. Hence, each of Barletta and Tadsen teaches anionic surfactant prepared by SO_3 sulfonation method.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicants' disclosure. The references are considered cumulative to or less material than those discussed above.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lorna M. Douyon whose telephone number is (571) 272-1313. The examiner can normally be reached on Mondays-Fridays from 8:00AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yogendra Gupta can be reached on (571) 272-1316. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lorna M. Douyon
Primary Examiner
Art Unit 1751